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DECONTAMINATION OF ASSOCIATE AIRCRAFT TOOL & MFG. COMPANY, HAMILTON, OHIO

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From February 1 to October 5, 1956, the Associate Aircraft Tool & Mfg. Company was engaged in the machining of hollow drilled uranium slugs. Upon completion of this work a decontamination campaign was undertaken by Associate personnel. This required approximately five weeks, during which time a total of seven trips were made to the Associate shop to check on the progress being made and to advise on methods of further cleaning when necessary.

All machining work and uranium stock was confined to an exclusive section of the building and as a result only this area required cleaning. All residual chips and turnings were removed from the floors and other surfaces, and with a steam generator furnished by NLO the floors and machines were steam cleaned. The machines had to be partially disassembled in order to remove contamination on their inner surfaces. Considerable difficulty was encountered in removing chips which were embedded in the mastic of the floor expansion seams. The mastic finally had to be removed.

By November 12, all machining equipment, except the table top of the Leland-Gifford drill press, was satisfactorily decontaminated and released. This table top contains an undetermined quantity of uranium contamination and because of its structure this cannot be removed by ordinary cleaning methods. A large portion of the fixed contamination on this piece of equipment is probably due to a fire which occurred in the drill press during the hollow slug program. Since it is being replaced by Associate's fire insurance company, it was recommended that it continue in use until the new table is installed, and at that time be sent to NLO for recovery of the contaminating materials.

Shown in the following table are the highest surface radiation measurements obtained on the machines at the conclusion of the decontamination period. In every case, it is the only location on the equipment where contamination was detectable and in every case these measured amounts are fixed and occupy only a small area on the inner surfaces. From a standpoint of potential external or internal radiation exposure, they are relatively insignificant.

Table I
(Machining Equipment)

Item	Location(s)	α (d/m/100cm^2)	β (mrep/hr)	γ (mr/hr)
#1 Libby turret lathe Serial No. 4R-1550	Inside coolant trough	15,000	1.2	<0.1

Item	Location(s)	α (d/m/100cm2)	β (mrep/hr)	γ (mr/hr)
#2 Libby turret lathe Serial No. 4R-41843	Inside coolant trough	13,500	1.2	<0.1
#3 Foster turret lathe Serial No. 5V-998	Inside housing below gear box	--	4.5	<0.1
#4 Foster turret lathe Serial No. 5V-1131	Inside housing below gear box	--	.75	<0.1
#1 Cincinnati Machine lathe, Serial No. 2W4D1Z-26		Non-detectable		
#2 Cincinnati Machine lathe, Serial No. 2W4D1Y-15		Non-detectable		
Leland-Gifford 4-spindle drill press Serial No. 6514	Coolant system	6,000	.5	<0.1
	Table top*	--	>20	<0.1

*This table top is a hollow baffled casting and contains an undetermined amount of uranium chips and turnings (not released).

Table II shows the maximum surface contamination left on the floors. Again this contamination is fixed and these results represent only a small portion of the overall floor surface. No detectable contamination was found on any of the floors outside the immediate working and storage areas.

Table II
(Floors)

	α (d/m/100cm2)	β (mrep/hr)	γ (mr/hr)
Maximum radiation level at a 3' distance	--	.08	.02
Maximum surface level around machines	2,500	.3	.01
Maximum surface level in storage areas and aisleways	1,200	.25	.01
Maximum surface level at expansion seams	2,500	.8	.01

Radiation measurements were taken at chest level at various points in the shop to determine the amount of possible radiation exposures to persons working in this area in the future. The highest measurement

obtained was .07 mrep/hr beta + gamma. Based on a 40-hour work week the dose rate from this source would be less than 1% of the maximum permissible dose rate recommended for persons working with radioactive materials.

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